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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,189	09/26/2001	Takayasu Komatsu	CU-2675 RJS	1641

26530 7590 02/25/2004

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EXAMINER

ROY, SIKHA

ART UNIT PAPER NUMBER

2879

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/964,189	KOMATSU ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Sikha Roy	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All   b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

The Amendment, filed on November 13, 2003 has been entered and is acknowledged by the Examiner.

Acknowledgement is made of the amended Drawing of Fig. 5.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 5,830,373 to Ohtake et al. ('373) and further in view of U.S. Patent 5,630,320 to Ohtake et al. ('320).

Regarding claim 1 Ohtake et al. ('373) disclose (column 6 lines 23-43, Figs. 3A, 3B, 4A, 4B) a shadow mask 26 formed of a thin metal plate containing through holes (circular electron beam apertures) each through hole having a rear side hole portion 40 through which electron beam enters and a front side hole portion 42 through which the electron beam is emitted to form a beam spot on a surface to be irradiated. Each through hole, defined by substantially tapered (arcuated) recess has a ridge portion formed by the intersection of the taper surface of the rear side hole portion and a taper surface of the front side hole portion. Ohtake et al. ('373) disclose (column 7 lines 44-51) that the thickness of the shadow mask is 0.13mm, hole width S (large opening

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diameter D) at the front side is 0.205mm, hole width Q (small opening diameter d) at the rear side is 0.125 mm. These values satisfy the taper size  $T = (S-Q)/2$  is within a range of 30 to 40 % of the thickness of the shadow mask thickness as claimed.

Ohtake et al. further disclose the ridge portion is formed at a sectional height (height from the surface 26a of the shadow mask 26 to the minimum diameter portion) 20  $\mu\text{m}$ .

Claim 1 differs from Ohtake et al. ('373) in that Ohtake ('373) does not exemplify the rear side through hole portion formed of inwardly tapered surface.

Ohtake ('320) in same field of endeavor of color cathode ray tube discloses (Figs. 4,6,7 column 7 lines 25-30, column 8 lines 5-8, 21-40) the smaller opening 40 is constituted by a substantially arcuated recess and the wall surface of the smaller opening is inwardly tapered from the open edge toward the boundary 43. Ohtake ('320) discloses this inclination of the outward wall surface of the small opening prevents reflection of electron beams towards the phosphor screen and hence improves contrast.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the wall surface of the rear side hole portion of the shadow mask of Ohtake ('373) to be inwardly tapered for preventing reflection of electron beams towards the phosphor screen and thus improving contrast.

Claim 2 essentially recites the same limitation as of claim 1 for apertures in the peripheral section of the shadow mask and is rejected for the same reason (see rejection of claim 1).

### ***Response to Arguments***

Applicant's arguments filed November 13, 2003 have been fully considered but they are not persuasive.

In response to applicants' argument that Ohtake ('373) does not disclose a ridge portion formed by intersection of a taper surface of rear side hole portion and a taper surface of front side hole portion the examiner respectfully disagrees. Ohtake ('373) indeed discloses (Fig. 4A column 6 lines 35-41) a ridge portion (minimum diameter portion) 43, boundary between the small and large openings, both the rear side and front side openings being defined by substantially arcuated recess (tapered) having circular open edge.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U. S. Patent 4,131,822 to Branton and U. S. Patent 5,384,511 to Fujimura disclose tapering of the wall surfaces of apertures in a shadow mask.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

*S.R.*

Sikha Roy  
Patent Examiner  
Art Unit 2879

  
VIP PATEL  
PRIMARY EXAMINER